IN THE CLAIMS:

Claim 1 (original) A method for demulsifying water-oil emulsions through ultrasonic action, comprising a step of making water-oil emulsions flow through at least one ultrasonic acting region in a flow direction, characterized in that: within said ultrasonic acting region, a concurrent ultrasonic wave whose traveling direction is the same as the flow direction of said water-oil emulsions is generated by at least one first ultrasonic transducer provided at the upstream end of said ultrasonic acting region, and at same time, a countercurrent ultrasonic wave whose traveling direction is opposite to the flow direction of said water-oil emulsions is generated by at least one second ultrasonic transducer provided at the downstream end of said ultrasonic acting region; and the concurrent ultrasonic wave and the countercurrent ultrasonic wave act simultaneously on the water-oil emulsions flowing through said ultrasonic acting region, so as to demulsify said water-oil emulsions.

Claim 2. (original) The method according to Claim 1, characterized in that, the orientation of the central axis of said ultrasonic acting region is identical with said flowing direction in which said water-oil emulsions flow through said ultrasonic acting region.

Claim 3. (original) The method according to Claim 1, characterized in that, said concurrent ultrasonic wave and the countercurrent ultrasonic wave travel with uniform sound intensity within said ultrasonic acting region; the sound intensity of

said countercurrent ultrasonic wave is no lower than that of said concurrent ultrasonic wave.

Claim 4. (previously presented) The method according to Claim 1, characterized in that, the sound intensity of said countercurrent ultrasonic wave is no higher than $0.8W/cm^2$.

Claim 5. (original) The method according to Claim 4, characterized in that, the sound intensity of said countercurrent ultrasonic wave is no higher than $0.5W/cm^2$.

Claim 6 (original) A demulsifying device for implementing the method according to Claim 1, the demulsifying device comprising at least one ultrasonic acting region in which water-oil emulsions flow, characterized in that, at the upstream end of said ultrasonic acting region there is mounted the first ultrasonic transducer for generating a concurrent ultrasonic wave whose traveling direction is the same as the flow direction of said water-oil emulsions, and at the downstream end of said ultrasonic acting region there is mounted the second ultrasonic transducer for generating a countercurrent ultrasonic wave whose traveling direction is opposite to the flow direction of said water-oil emulsions; and a ultrasonic generator is connected with said first and second ultrasonic transducers via ultrasonic power lines, so as to drive said first and second ultrasonic transducers to generate said concurrent ultrasonic wave and said countercurrent ultrasonic wave.

Claim 7 (original) The demulsifying device according to Claim 6, characterized in that, said ultrasonic acting region is of a pipe structure and is connected with other water-oil emulsion pipes in production and processing line.

Claim 8 (original) The demulsifying device according to Claim 7, characterized in that, said ultrasonic acting region is of a pipe structure with a constant diameter.

Claim 9 (original) The demulsifying device according to Claim 7, characterized in that, said ultrasonic acting region is of a pipe structure with a varying diameter.

Claim 10 (previously presented) The method according to Claim 3, characterized in that, the sound intensity of said countercurrent ultrasonic wave is no higher than $0.8W/cm^2$.

Claim 11 (previously presented) The method according to Claim 4, characterized in that, the sound intensity of said countercurrent ultrasonic wave is no higher than $0.8W/cm^2$.

Claim 12 (previously presented) The method according to Claim 10, characterized in that, the sound intensity of said countercurrent ultrasonic wave is no higher than $0.5W/cm^2$.

Claim 13 (previously presented) The method according to Claim 11, characterized in that, the sound intensity of said countercurrent ultrasonic wave is no higher than $0.5W/cm^2$.

Claim 14 (new) A method for demulsifying a water-oil emulsion through ultrasonic action, comprising a step of making the water-oil emulsion flow through at least one ultrasonic acting region in a flow direction such that, within said ultrasonic acting region, a concurrent ultrasonic wave whose traveling direction is the same as the flow direction of said water-oil emulsion is generated by at least a first ultrasonic transducer provided at an upstream end of said ultrasonic acting region and, at the same time, a countercurrent ultrasonic wave whose traveling direction is opposite to the flow direction of said water-oil emulsion is generated by at least a second ultrasonic transducer provided at a downstream end of said ultrasonic acting region; wherein the concurrent ultrasonic wave and the countercurrent ultrasonic wave act simultaneously on the water-oil emulsion flowing through said ultrasonic acting region to demulsify said water-oil emulsion with the combined action of the concurrent and countercurrent ultrasonic waves having a demulsifying effect that is greater than that of the concurrent or countercurrent ultrasonic wave alone.

Claim 15 (new) The method according to Claim 14, wherein said ultrasonic acting region has a central axis with an orientation that is identical with said flow direction in which said water-oil emulsion flows through said ultrasonic acting

region.

Claim 16 (new) The method according to Claim 14, wherein the concurrent ultrasonic wave and the countercurrent ultrasonic wave travel with uniform sound intensity within said ultrasonic acting region; the sound intensity of said countercurrent ultrasonic wave being no lower than that of said concurrent ultrasonic wave.

Claim 17 (new) The method according to Claim 14, wherein the sound intensity of said countercurrent ultrasonic wave is no higher than $0.8W/cm^2$.

Claim 18 (new) The method according to claim 16, wherein the ultrasonic acting region comprises a pipe structure with varying diameter.

Claim 19 (new). The method according to claim 17, wherein the sound intensity of the countercurrent ultrasonic wave is no higher than $0.5\ W/cm^2$.